OPERATING PLAN 2007

FIRE WEATHER SERVICES FOR MOST OF MISSOURI, AND ADJACENT COUNTIES OF EASTERN KANSAS, SOUTHERN ILLINOIS, SOUTHWEST INDIANA AND WESTERN KENTUCKY

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I. Introduction

This document contains the 2006 Operating Plan for the fire weather forecast areas for the National Weather Service Offices (WFO) at Springfield, Pleasant Hill, and St. Louis, Missouri and Paducah, Kentucky. This is an interagency agreement for meteorological services between the above National Weather Service Offices and the following agencies:

The United States Forest Service:

Mark Twain National Forest (Missouri)

Shawnee National Forest (Illinois)

Land Between the Lakes National Recreation Area (Kentucky)

The National Park Service:

Ozark National Scenic Riverways (Missouri)

Wilson's Creek National Battlefield (Missouri)

U.S. Fish and Wildlife Services:

Crab Orchard National Wildlife Refuge (Illinois)

Cypress Creek National Wildlife Refuge (Illinois)

Marais des Cygnes National Wildlife Refuge (Kansas)

Squaw Creek National Wildlife Refuge (Missouri)

Swan Lake National Wildlife Refuge (Missouri)

U.S. Department of Defense

Fort Campbell Public Works Business Center Environmental Division (Kentucky/Tennessee)

II. Summary of Changes

2007 Changes

- Added information to reflect added fire weather services by WFO St. Louis.
- Added information to reflect NFDRS forecast support by WFO Pleasant Hill.
- Added Farmington, Chillicothe, Atlanta, Clinton, and Sullivan (all in Missouri) as National Fire Danger Rating System (NFDRS) sites.
- Updated contact information.
- Several minor typographical fixes and rewording.
- Several minor changes to the Fire Weather Planning Forecast section (Section V B.) to better conform to National Weather Service Directive 10-401.

III. Fire Weather Support Responsibility Areas and Contact Information for NWS Offices

National Weather Service Forecast Offices are staffed 24 hours a day 365 days a year. Service areas and contact information for each forecast office is depicted
below:

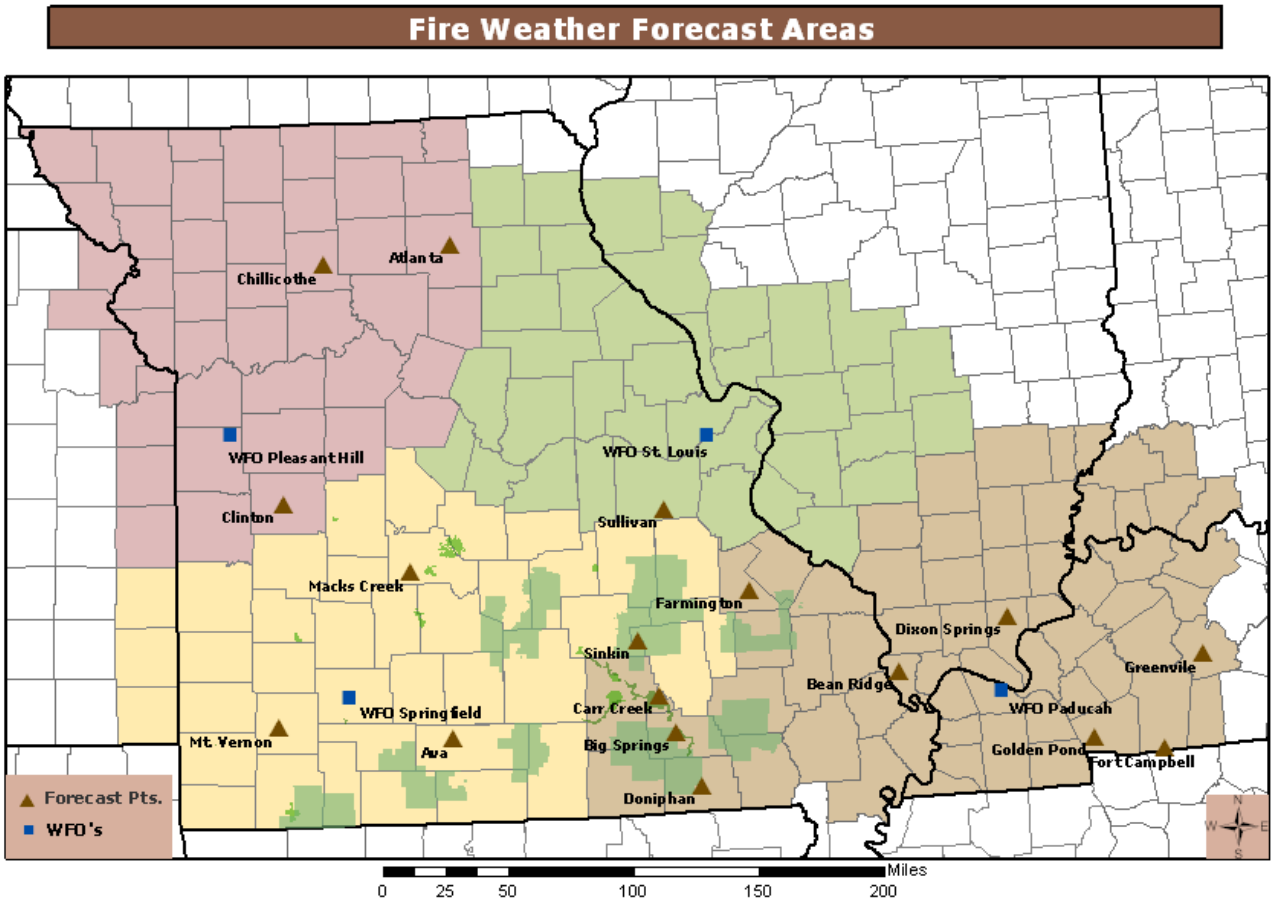

Figure 1 Forecast Areas of Responsibility and National Fire Danger rating System (NFDRS) Forecast Points. Forecast Areas of Responsibility. Blue Squares = Location of NWS Offices Brown triangles = National Fire Danger Rating System (NFDRS) Forecast Points.

Contact Information: WFO Springfield, MO

Address:	5805 West Highway EE Springfield-Branson Regional Arpt. Springfield, MO 65802
Phone/Fax:	(800) 762-4363 / (417) 863-6209
Meteorologist In Charge:	William Davis – william.davis@noaa.gov
Fire Weather Program Leader:	Drew Albert – drew.albert@noaa.gov
Internet Address To Fire Weather Products:	http://www.crh.noaa.gov/sgf/firewx/

Services:
Fire Weather Zone (County) Forecasts – All Year
NFDRS Point Forecasts – 4 - Ava MO, Sinkin MO, Mt. Vernon MO, Macks Creek, MO – All Year

Contact Information: WFO Paducah , KY

Address:	8250 Kentucky Hwy 3520 West Paducah, KY 42086
Phone/Fax:	(800) 533-7189 / (270) 744-3828
Meteorologist In Charge:	Beverly Poole - beverly.poole@noaa.gov
Fire Weather Program Leader:	Kelly Hooper - kelly.hooper@noaa.gov
Internet Address To Fire Weather Products:	http://www.crh.noaa.gov/pah/forecast/firewx.php

Services:
Fire Weather Zone (County) Forecasts – All Year
NFDRS Point Forecasts - 9 – Carr Creek MO, Big Springs MO, Doniphan MO, Farmington MO, Dixon Springs IL, Golden Pond KY, Bean Ridge IL, Greenville KY, Ft. Campbell, TN – Seasonal Fall/Spring

Contact Information: WFO Pleasant Hill, MO

Address:	1803 N. 7 Hwy Pleasant Hill, MO 64080
Phone/Fax:	(800) 438-0596 / (816) 540-5922
Meteorologist In Charge:	Julie Adolphson – julie.adolphson@noaa.gov
Fire Weather Program Leader:	Patricia Cooper – patricia.cooper@noaa.gov
Internet Address To Fire Weather Products:	http://www.crh.noaa.gov/eax/firewx/

Services:
Fire Weather Zone (County) Forecasts – Seasonal Fall/Spring
NFDRS Point Forecasts – 3 – Chillicothe MO, Atlanta MO, Clinton MO – Seasonal Fall/Spring

Contact Information: WFO St. Louis, MO

Address:	12 Missouri Research Park Drive St. Charles, MO 63304
Phone/Fax:	(800) 852-7497 / (636) 447-1769
Meteorologist In Charge:	Steven Thomas – steven.thomas@noaa.gov
Fire Weather Program Leader:	Jim Sieveking – jim.sieveking@noaa.gov
Internet Address To Fire Weather Products:	http://www.crh.noaa.gov/lsx/?n=firewx

Fire Weather Zone (County) Forecasts – All Year
NFDRS Point Forecasts -1 – Sullivan, MO – All Year

IV. Service Backup

The following NWS offices will provide service backup for fire weather products:

	WFO Paducah	WFO Pleasant Hill	WFO Springfield	WFO St. Louis
Primary Backup:	WFO Louisville (502) 968-6329	WFO Springfield (800) 762-4363	WFO St. Louis (800) 852-7497	WFO Pleasant Hill (800) 438-0596
Secondary Backup:	WFO Springfield (800) 762-4363	WFO Topeka (785) 232-1494	WFO Paducah (800) 533-7189	WFO Central Illinois (217) 732-3089

V. Basic Services

A. Fire Season

Specific dates for starting and ending routine services will be determined through coordination with the various user agencies and the National Weather Service offices.

B. Fire Weather Planning Forecast

WFOs Paducah, Springfield, and St. Louis issue daily routine forecasts (during locally agreed upon fire seasons) during the early morning and afternoon. WFO Pleasant Hill issues one early morning forecast. Forecast amendments will be issued any time as needed. Examples of the Fire Weather Planning Forecast are in Appendix B.

Fire Weather Planning Forecasts will be updated when a Fire Weather Watch or Red Flag Warning is issued or cancelled or when forecast elements are deemed unrepresentative.

Routine forecast content/format will vary somewhat from office to office. Fire Weather Planning Forecasts will include the following general components:

1. Discussion

The discussion should be concise, but describe the main weather features to adequately explain why the forecast weather will occur. The discussion should also highlight significant changes that will affect the fire environment. Typically the discussion will cover the next two days, however, significant changes in any forecast period should be discussed. A headline will be included for Fire Weather Watches, Red Flag Warnings, and other significant weather deemed appropriate by the fire weather meteorologist.

2. Cloud Cover

This element describes the sky condition for the forecast period.

3. Precipitation (Precip) Type

This is a general descriptor of the precipitation type (rain, sleet, snow, showers, thunderstorms, etc).

4. Chance of Precipitation (Chance Precip (%))

The probability of precipitation expresses the chance that measurable rainfall will occur at any given point within a county zone group. Measurable rainfall is 0.01 inches or greater. Probability is expressed in percent.

5. Maximum (Max)/Minimum (Min) Temperature

Temperatures will be encoded in degrees Fahrenheit (deg F). The maximum temperature will be forecast for the day period, and minimum at night.

6. Maximum (Max)/Minimum (Min) Humidity

Relative humidity is expressed in percent. The minimum or lowest humidity will be forecast for the day period, and highest humidity at night.

7. 20 Foot Wind

The forecast wind speed for the fire weather forecasts will reflect the 10 minute average wind that is commonly measured at fire weather sites. The wind direction will be forecast to the sixteen cardinal points of the compass and expressed in miles per hour (mph). Wind direction will indicate the direction the wind is blowing from **(i.e. SSW 15 mph).** Since most surface observation stations used for National Weather Service forecasts measure wind speed/direction at 10 meters (roughly 33 feet) with a two minute average, a reduction factor is used to arrive at the 20 foot wind forecast.

8. Wind Shift

If a shift in wind direction associated with a frontal passage is expected during the period, the new direction and wind speed will be forecast. Because a front may take several hours to move through a zone/area, the approximate time or time period (i.e. afternoon/morning/evening/overnight) of the wind shift will be encoded. Significant wind shifts may also be encoded in the remarks section of the forecast.

9. Chance of Precipitation (Chance Precip (%))

The probability of precipitation (POP) expresses the chance that measurable rainfall will occur at any given point within a county zone group. Measurable rainfall is 0.01 inches or greater. Probability is expressed in percent.

10. Precipitation Amounts

The expected average rainfall for a county zone group will be expressed in decimal notation in inches **(i.e. 0.10 to 0.50 inches, 1.00 to 1.50 inches).**

11. Duration

This is the average duration in whole hours that precipitation will occur in the county zone group.

12. Mixing Height

Mixing height is the extent or depth to which smoke will be dispersed by means of turbulence and diffusion. The forecast of mixing height is expressed in feet above ground level (AGL).

13. Transport Wind

Transport wind is the average wind speed in meters/second in the mixing depth above the surface. These winds are good indications of the horizontal dispersion of suspended particles. The transport wind is the forecast wind at the time of maximum mixing of the atmosphere, normally during the mid afternoon. Usually a wind of less than 4 meters/second restricts an agency from burning.

14. 1700 foot (500 meter) Mixing Height Temperature

This is the surface temperature that must be reached in order for the mixing depth to reach 1700 feet. Once the forecast temperature is reached at the burn site, it can be assumed that the mixing height above the burn site is at least 1700 feet or 500 meters.

Note: One consequence of the Clean Air Act, is that land managers must practice principles of careful smoke management. This is done by combining favorable meteorological conditions with a variety of prescribed fire techniques so that smoke will be readily dispersed. The 1700 foot/500 meter mixed layer is a common suggested minimum mixing layer depth for prescribed burning to limit the concentration of particulate matter near the ground and to limit the aerial coverage of limited visibility due to smoke. Local regulations or practices may differ.

15. Haines Index

It is used to indicate the potential for wildfire growth by measuring the stability and dryness of the air over a fire. It is calculated by combining the stability and moisture content of the lower atmosphere into a number that correlates well with large fire growth. The stability term is determined by the temperature difference between two atmospheric layers; the moisture term is determined by the temperature and dew point difference. This index has been shown to be correlated with large fire growth on initiating and existing fires where surface winds do not dominate fire behavior. The Haines Index can range between 2 and 6. The drier and more unstable the lower atmosphere is, the higher the index.

16. Ventilation Rate/Dispersion Index

This term is used to describe the ability of the atmosphere to disperse (or “ventilate”) smoke. It depends on two components: The depth of the mixed layer (or unstable layer) above the ground and the average wind speed or transport wind within that mixed layer. The chart below relates qualitative values with calculated values.

Ventilation Index (kt ft) = Mixing Height (ft) x Average Transport Winds (kts)	
Excellent	>= 150,000 kt ft
Very Good	>= 100,000 kt ft and < 150,000 kt ft
Good	>= 60,000 kt ft and < 100,000 kt ft
Fair	>= 40,000 kt ft and < 60,000 kt ft
Poor	<= 40,000 kt ft

17. Davis Stability Index (DSI) (WFO Paducah, WFO St. Louis only)

The Davis Stability Index is a common fire stability index parameter utilized primarily in the southeast

United States. The formula for the Davis Stability Index is as follows:

Davis Stability Index (DSI) = Max Temp (deg C) - 850mb Temp (deg C)

If the difference is less than 10 deg C, it is considered a Category 1 or stable.
If the difference is 10 deg C to 14 deg C, it is considered a Category 2 or conditionally unstable.
If the difference is 15 deg C to 17 deg C, it is considered a Category 3 or unstable.
If the difference is greater than 17 deg C, it is considered a Category 4 or absolutely unstable.

18. Extended Forecast

A general extended forecast will be included in the fire weather planning forecast text. This will include expected general weather conditions, high and low temperatures, and 20 foot winds. The extended forecast will cover a period out to 7 days and should be considered for general planning purposes only.

19. Remarks

Appropriate remarks to add value to the forecast or mark significant weather changes.

C. Fire Weather Watches and Red Flag Warnings

Fire Weather Watches and Red Flag Warnings will be issued when the combination of dry fuels and weather conditions support an extreme fire danger. These conditions alert land management agencies to the potential for widespread fire control problems.

Fire Weather Watches will be issued when there is a high potential for a Red Flag event. The watch will be issued between 12 to 72 hours before the onset of warning conditions. The watch can be issued for all or select portions of the region.

Fire Weather Watches should not be issued, or continued, to indicate that low confidence or borderline warning conditions will take place. In these situations, forecasters should describe the expected conditions and state the reasons for forecast uncertainty in the discussion portion of the routine planning forecast.

A Red Flag Warning is used to warn of an impending, or occurring, Red Flag event. Its issuance denotes a high degree of confidence that weather and fuel conditions consistent with local Red Flag criteria will occur within 24 hours or less. Forecaster can issue the warning for all or part of their fire weather forecast area.

The general criteria for the issuance of Fire Weather Watches and Red Flag Warnings will vary depending on the. National Weather Services offices and user agencies are strongly encouraged to establish local general criteria for the issuances of watches and warnings.

For the Mark Twain National Forest/southern Missouri the following **general** criteria have been established:

- General 20 foot wind speed (10 minute average) - sustained winds of greater than 20 mph.
- Forecast minimum surface relative humidity of 25% or less.
- Ten hour fuel moisture reaching or expected to reach at or below seven percent.
- Warm Daytime temperatures (>60 deg F) mainly during the early Spring when field burning is common.

These criteria are general parameters and they should be considered with the whole fire weather environment

in mind.

Because of the restriction of user programs brought about by a Red Flag Warning, it is imperative that the warning be promptly cancelled when the conditions cease to exist or if the conditions are no longer expected to develop. The cancellation will be issued under the RFW product header.

D. National Fire Danger Rating System (NFDRS) Fire Weather Point Forecasts and Point Forecast Terminology

The NFDRS is a quantitative means for evaluating the fire danger across a large area such as a forest. This complex model processes daily weather observations, fuel moisture, and forecasts as inputs. The resulting numeric output and indices suggest the severity of fire danger over a large area.

The following are NFDRS sites covered by this Annual Operating Plan:

Site	County	State	Station I.D.	Issuing WFO	Site	County	State	Station I.D.	Issuing WFO
Ava	Douglas	Missouri	238602	Springfield	Carr Creek	Shannon	Missouri	237401	Paducah
Sinkin	Dent	Missouri	236403	Springfield	Big Springs	Carter	Missouri	239004	Paducah
Macks Creek	Camden	Missouri	235202	Springfield	Doniphan	Ripley	Missouri	239102	Paducah
Mt. Vernon	Lawrence	Missouri	236901	Springfield	Farmington	St. Francois	Missouri	236601	Paducah
Chillicothe	Livingston	Missouri	231301	Pleasant Hill	Dixon Springs	Pope	Illinois	119501	Paducah
Atlanta	Macon	Missouri	231501	Pleasant Hill	Golden Pond	Trigg	Kentucky	159901	Paducah
Clinton	Henry	Missouri	233701	Pleasant Hill	Bean Ridge	Alexander	Illinois	119701	Paducah
Sullivan	Franklin	Missouri	234502	St. Louis	Greenville	Muhlenberg	Kentucky	151191	Paducah
					Fort Campbell	Montgomery	Tennessee	400201	Paducah

Figure 2: NFDRS Sites Covered By This Operating Plan

NFDRS forecasts will be issued daily during designated (locally agreed upon) fire weather seasons. Daily issuance times will be made on an agency by agency basis, however, it is recommended that National Weather Service offices make forecasts available as soon as possible (after the daily 100 pm observation are available) so that land management agencies can calculate burn indices, projected staffing levels, etc. as quickly as possible.

Example of a NFDRS forecast:

FCST,238602,990503,13,2,72,65,1,1,S,15,M,72,54,95,35,0,0,N

ID 1	DATE 2	VT 3	WX 4	TT 5	RH 6	L1 7	L2 8	DD 9	VV 10	M 11	TX 12	TN 13	HX 14	HN 15	D1 16	D2 17	Y/N 18
238602	990503	13	2	71	60	1	1	S	14	M	77	52	95	30	0	1	N

FCST...must always precede the forecast and each entry must be separated by a comma.

1. Station I.D. (ID)

Each station forecast point has an identification number assigned to it.

2. Date (DATE)

The date in the YYMMDD format. This is the valid date for the point forecast. A forecast valid March 1 1997 would be coded as 970301. (Today's product would have tomorrow's date).

3. Valid Time (VT)

This is the valid time for the forecast...1300 CST tomorrow (1pm).

4. State of Weather (WX)

Forecasters will select the highest code for state of weather which will describe the weather at the basic observation time the next day. It is important to distinguish between codes 5, 6, 7 (long duration stratiform precipitation) and code 8 and 9 (showers, thunderstorms). A forecast of code 5, 6, 7 will zero out the indices in the NFDRS. This is essentially like setting the wet flag to y (yes). Unless there is overwhelming meteorological support to justify codes 5, 6, or 7, use code 8 or 9 where applicable.

Weather codes: 0=Clear 1=Scattered 2=Broken 3=Overcast 4=Fog 5=Drizzle 6=Rain 7=Snow/Sleet 8=Showers 9=Thunderstorm

5. Temperature (TT)

This is the valid time for the forecast...1300 CST tomorrow (1pm). Units are in degrees Fahrenheit (deg F).

6. Relative Humidity (RH)

Relative humidity at basic observation time of 1300 CST tomorrow (1 pm).

7 and 8. Lightning Activity Level (Ll) and (L2)

This is the predicted lightning activity level. **This parameter is not forecast, rather a default value of 1 (no thunderstorms) is always entered.**

L1 is the lightning activity level predicted from 1:00 PM to midnight. L2 is the lightning activity level from midnight to the next midnight. A single digit (1 through 6) will be used.

1 - No thunderstorms (default value)

2 - Few building cumulus with isolated thunderstorms.

3 - Much building cumulus with scattered thunderstorms, with light to moderate rain.

4 - Thunderstorms common, not obscuring the sky, with moderate rain.

5 - Thunderstorms common, occasionally obscuring the sky, with moderate to heavy rain.

6 - Much building cumulus with scattered thunderstorms, dry/no rain. (Same as 3, but dry, no rain.)

9. Wind Direction (DD)

Wind direction by compass points **(i.e. N, NE, E, SE, S, SW W, NW).**

10. Wind Speed (VV)

This is the forecast 10-minute average 20 foot wind speed in miles per hour at 1:00 PM tomorrow. Since most surface observation stations used for National Weather Service forecasts measure wind speed/direction at 10 meters (roughly 33 feet) with a two minute average, a reduction factor is used to arrive at the 20 foot wind forecast.

11. 10 Hour Time Lag Fuel Moisture (M)

The 10-hour time lag fuel moisture is entered as M for missing or left blank.

12. Maximum Temperature (TX)

The maximum temperature (deg F) expected during the 24-hour period from basic observation time today to basic observation time tomorrow. The maximum value cannot be lower than what was observed today or forecast at basic observation time tomorrow.

13. Minimum Temperature (TN)

The minimum temperature (deg F) expected during the 24-hour period from basic observation time today to basic observation time tomorrow. The forecast minimum cannot be higher than the temperature observed or forecast at the basic observation time.

14. Maximum Relative Humidity (HX)

Forecast maximum humidity over the 24-hour period between basic observation times.

15. Minimum Relative Humidity (HN)

Forecast minimum humidity (deg F) over the 24-hour period between basic observation times. The minimum value forecast cannot be higher than the observed or forecast values at basic observation times.

16. Precipitation Duration 1:00 PM to 5:00 AM (D1)

The expected duration in whole hours that precipitation will fall at the site for the first 16 hours during the 24-hour period between observation times.

17. Precipitation Duration 5:00 AM to 1:00 PM (D2)

The expected duration in whole hours that precipitation will fall at the site for the last 8 hours during the 24-hour period between observation times.

18. Wet Fuels Conditions (Y/N)

When fuels are anticipated to be wet at observation time, 1:00 PM the next day, a Y (Yes) should be inserted in the appropriate column in WIMS. If a wet fuel condition is not anticipated at 1:00 PM the next day, enter N (No). If snow cover is anticipated, a wet fuel condition should be entered.

E. Spot Forecasts (All WFOs)

Site specific (spot) forecasts are non-routine products issued at the request of the user. NWS offices will provide spot forecast service upon request of any federal, state, or local official required to support wildfire suppression operations.

For non-wildfire purposes, resources permitting, NWS offices will provide spot forecast service under the following circumstances and conditions:

1. Upon request of any federal official who represents that spot forecast support is required under the terms of the Interagency Agreement for Meteorological Services (NWS Instruction 10-406).
2. Upon request of any state, local, or tribal official who represents that the spot forecast is required to carry out their wildland fire management responsibilities in coordination with any federal land management agency participating in the Interagency Agreement for Meteorological Services (NWS Instruction 10-406).
3. Upon request of any public safety official who represents that the spot forecast is essential to public safety. A "public safety official" is an employee or contract agent of a government agency at any level (federal, state, local, tribal, etc.) charged with protecting the public from hazards including wildland fires of whatever origin and/or other hazards influenced by weather conditions such as hazardous material releases.

NWS offices will not provide spot forecasts to private citizens or commercial entities not acting as an agent of a government agency.

Requests for a spot forecast will normally be transmitted to the WFO via the Internet Spot Forecast Request Program (NWS Spot), telephone, or fax.

Spot forecasts for active fires should be updated when the forecaster becomes aware of any significant unanticipated weather changes that may have an impact on fire suppression or controlled burning operations and/or safety of personnel. Updates can consist of a telephone/verbal update in lieu of a written product. Land management personnel should contact the WFO if forecast conditions become unrepresentative of the observed weather.

Unless otherwise stated by the requesting agency, the forecast parameters of sky condition, weather, temperature, relative humidity, 20 foot wind, significant/sudden changes in wind speed or direction, along

with mixing heights, transport winds, and stability, if available, shall be provided.

Site forecast for ongoing wildfires are crucial to fighting fires and personnel safety. Of paramount importance are forecasts of wind velocity and humidity. For an ongoing wildfire, an attempt should be made to provide a current observation at the time a forecast is requested. The observation will aid the forecaster in preparing a more accurate site specific forecast.

1. Spot Forecast Requests Via the NWS Spot Forecast Program

Spot forecasts via the Internet can be accessed from the appropriate National Weather Service office's fire weather page.

2. Spot Forecast Via Fax

Persons requesting a spot forecast via fax should utilize Weather Service (WS) Form D-1. This form is located in Appendix B of National Weather Service Instruction 10-401. This form should be considered a manual backup to the National Weather Service Spot forecast system via the Internet.

3. Spot Forecast Requests Via Telephone

Spot requests via telephone should be reserved for occasions where a quick forecast update is needed and time restraints and/or available resources prohibit the use of the Internet of fax. Both the requesting agency and the WFO are highly encouraged to document as thoroughly as possible any information communicated during a phone/verbal spot forecast briefing.

F. Hazardous Weather Outlooks

Hazardous Weather Outlooks are issued by weather forecast offices to alert the general public to potentially dangerous weather situations. When a combination of meteorological conditions leads to an increased fire danger but falls short of Fire Weather Watch or Red Flag Warning criteria, this product is issued to the general public. This statement is issued to make the public aware of a heightened fire danger and to discourage open burning and careless use of smoking materials. Approval of the user agencies is not necessary to issue this statement. (See Appendix B for an example).

Fire Weather Watches and Red Flag Warnings will also be mentioned in the form of a general text message to the general public using the Hazardous Weather Outlook.

VI. Special Services

Special meteorological services meet the needs of agencies that often have unique requirements for weather support, and may best be performed by the fire weather meteorologist away from the home forecast office. These services usually must be initiated by the requesting agency, and costs such as travel and per diem will be charged to a reimbursable task number assigned for the project.

Special services may include fire weather station visits, familiarization trips to the forest, observer training sessions, and S-290, S-390, S-490, and other courses. The fire weather meteorologist may be asked to attend a prescribed burn when available. If the trip involves an overnight stay, the letter should state that the requesting agency will pay travel expenses. A one day trip will not incur any costs to the requesting agency. When the land management agency wishes for a fire weather forecaster to attend a course, the same procedure for requesting a forecaster to a station visitation should be followed, except that specific dates should be given in the letter. The letter will be forwarded to NWS Central Region Headquarters so that a reimbursable task code can be assigned for

the trip.

A. Fire Weather Stations

Supplies, equipment, and maintenance of the fire weather station are the responsibility of the land management agency (station owner). If a new station is being established, or an old station is moved to another location, a station number will be assigned by the fire weather program leader for the National Weather Service Central Region Headquarters located in Kansas City. The land management agency should provide the latitude and longitude of the new station, and the elevation when requesting a station number.

B. Fire Weather Services – On Site Support

On-site forecast service is a non-routine service available from National Weather Service Offices with designated Incident Meteorologists (IMETs). The NWS will provide IMET services upon request of federal, state, tribal, or local government fire agencies in support of wildfires. This support typically includes dispatches to Incident Command Posts, but may also include dispatches to land management coordination and dispatch centers, and Area Commands.

IMET support will also be considered for non-wildfire situations if resources permit. Such uses will be limited to requests of federal fire agencies participating in the Interagency Agreement (see NWS Instruction 10-406), and requests by a public safety official who represents such support as essential to public safety (see section 4 of National Weather Service Instruction 10-401).

Procedures to request the services of an IMET are detailed in NWS Instruction 10-402.

VII. Weather Information and Management System (WIMS) - Dissemination of Products

The principal method of dissemination of the observations and forecasts is through WIMS. Observations that are entered into WIMS at the Kansas City Computer Center are transmitted to the NWS Telecommunications Gateway Facility in Washington D.C. The observations are collected in bulletins that are transmitted to the National Weather Service Forecast Offices where they are compiled into various fire weather products and then transmitted via the NWS Telecommunications Gateway Facility to WIMS.

VIII. Signature Page

National Weather Service		
Office	Approving Authority	Date Signed
NWS Springfield, MO	MIC	
NWS Paducah, KY	MIC	
NWS St. Louis, MO	MIC	
NWS Pleasant Hill, MO	MIC	
Central Region Headquarters, Kansas City, MO	Regional Operations Services Meteorologist	
User Agency: Department of Agriculture		
Office	Approving Authority	Date Signed
U.S. Forest Service - Mark Twain National Forest		
U.S. Forest Service - Shawnee National Forest		
U.S. Forest Service - Land Between the Lakes National Recreation Area		
User Agency: Department of Interior		
Office	Approving Authority	Date Signed
Crab Orchard National Wildlife Refuge		
National Park Service - Ozark Scenic Riverways		
Cypress Creek National Wildlife Refuge		
Marais des Cygnes National Wildlife Refuge		
Squaw Creek National Wildlife Refuge		
Swan Lake National Wildlife Refuge		
User Agency: Department of Defense		
Fort Campbell Public Works Business Center Environmental Division		

IX. Appendices

Appendix A - Product Identification List

Product/WMO Header	AWIPS PIL WFO Paducah	AWIPS PIL WFO Pleasant Hill	AWIPS PIL WFO Springfield	AWIPS PIL WFO St. Louis
Fire Weather Forecast/ FNUS53	SDFFWFPAH	STLFWFEAX	STLFWFSGF	STLFWFLSX
Fire Weather NFDRS Point Forecast/ FNUS83	SDFFWMPAH	STLFWMEAX	STLFWMSGF	STLFWMLSX
Fire Weather Watch/ Red Flag Warning/ WWUS83	SDFRFWPAH	STLRFWEAX	STLRFWSGF	STLRFWLSX
Spot Forecast Requests/ BMBB91	SDFSTQPAH	STLSTQEAX	STLSTQSGF	STLSTQLSX
Spot Forecasts/ FNUS73	SDFFWSPAH	STLFWSEAX	STLFWSSGF	STLFWSLSX
Hazardous Weather Outlook/ FLUS43	SDFHWOPAH	STLHWOEAX	STLHWOSGF	STLHWOLSX

Appendix B - Fire Weather Product Examples

1. Routine Fire Weather Planning Forecast

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FNUS5i KNNN DDHHMM
FWFNNN

FIRE WEATHER PLANNING FORECAST
NATIONAL WEATHER SERVICE CITY STATE
TIME-DATE (example: 300 PM EST TUE JAN 1 2001)

...HEADLINE... (REQUIRED for Red Flag Warnings and Fire Weather Watches...significant fire
weather feature(s) at other times recommended…does not include public warnings/advisories)

.DISCUSSION...(concise, clear, non-technical explanation of the current/forecasted fire
weather)

SSZXXX-XXX>XXX-DDHHMM- (UGC/FIPS coding)
GEOGRAPHIC DESCRIPTORS (such as land management units, political boundaries,
                        geographic features, and/or fire weather zones)
TIME-DATE (repeated)

...RED FLAG WARNING/FIRE WEATHER WATCH HEADLINE (as needed in each appropriate zone grouping)
...

PARAMETER                  TONIGHT      TOMORROW     TOMORROW     FOLLOWING
                                                     NIGHT        DAY
CLOUD COVER                (CLOUDY, MCLDY, PCLDY, CLEAR)
CHANCE PRECIP (%)          (Percent chance precip 0-100 or areal coverage)
PRECIP TYPE                (NONE, DRIZL, FRZ RAIN, SNOW/RAIN, RAIN, TSHWR)
TEMP (24H TREND)           (Max/min temps as zone avg or extremes, trend not
                                  included in 3rd or 4th period PM forecasts)
RH % (24H TREND)           (Max/min relative humidity as zone avg or extremes,
                                  trend not included in 3rd or 4th period PM
                                  forecasts)
20FT WND MPH(VALLEY/AM)    (8 pt compass or upslope/downslope and MPH w gusts,
                          can be VALLEY or AM wind)
20FT WND MPH(RIDGE/PM)     (8 pt compass and MPH w/gusts, can be PM or ridge top
                          winds)
PRECIP DURATION              (Hours of precip in period)
PRECIP BEGIN         (Onset of precip probability)
PRECIP END                   (Cessation of precip probability)
PRECIP AMOUNT        (Zone avg QPF inches)
LAL                          (Lightning Activity Level)
HAINES INDEX (LOW)   (As applicable)
HAINES INDEX (MID)   (As applicable)
MIXING HGT (AGL/MSL)(Feet or meters)
TRANSPORT WIND(KTS) (8 pt compass)
VENT RATE  (KT-FT)  (Mixing height times transport wind)
DISPERSION                   (Locally defined category, e.g. GOOD)
(OTHER LCL OPTIONS

REMARKS...APPROPRIATE REMARKS TO ADD VALUE AND MARK SIGNIFICANT WEATHER CHANGES.

(.FORECAST DAYS 3 THROUGH 7 may optionally be provided for each zone segment)

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[forecast for next geographical descriptor and fire weather zone group]

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.FORECAST FOR DAYS 3 THROUGH 7... (wind required days 3-5, days 6 and 7 if appropriate; other
elements per locally-established policy; days 3-7 may be grouped in any combination; may be
in each zone segment versus this location)
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2. Fire Weather Watch/Red Flag Warning

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URGENT - FIRE WEATHER MESSAGE
NATIONAL WEATHER SERVICE CITY STATE
TIME-DATE (example: 0830 MDT TUE SEP 02, 2001)
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```
...HEADLINE/S (optional)...

DISCUSSION...(optional, focus on adverse weather conditions)

SSZXXX-XXX>XXX-DDHHMM- (UGC/FIPS coding)
GEOGRAPHICAL DESCRIPTORS (including land management governing units and/or optional fire
weather zone numbers)
TIME-DATE (example: 0830 MDT TUE SEP 02, 2001)

...HEADLINE (of what, where, when)...
```

Discussion/details... In the initial issuance of the watch or warning, the NWS offices will include the following phrase to begin the discussion: THE NATIONAL WEATHER SERVICE HAS ISSUED A [RED FLAG WARNING or FIRE WEATHER WATCH] FOR (Geographic Area).

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[next segment if necessary]
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3. Hazardous Weather Outlook

TTAA00 KSGF 111200
KSZ073-097-101-MOZ055>058-066>071-077>083-088>098-101>106-121200-

HAZARDOUS WEATHER OUTLOOK
NATIONAL WEATHER SERVICE SPRINGFIELD MO
100 PM CST WED NOV 20 2002

THIS HAZARDOUS WEATHER OUTLOOK IS FOR THE MISSOURI OZARKS AND EXTREME
SOUTHEAST KANSAS.

DAY ONE...

SOUTHWEST WINDS INCREASING TO 10 TO 20 MPH WITH HIGHER GUSTS ALONG WITH AFTERNOON RELATIVE HUMIDITY READINGS DROPPING TO 25 TO 30 PERECENT WILL COMBINE TO PRODUCE AN INCREASED GRASS FIRE DANGER OVER THE REGION TODAY. THE STRONGEST WINDS WILL OCCUR IN COUNTIES ALONG THE WESTERN MISSOURI STATE LINE WHERE WINDS ARE EXPECTED TO BE SOMEWHAT HIGHER.

THOSE PLANNING OUTDOOR BURNING PROJECTS TODAY SHOULD TAKE EXTRA PRECAUTIONS TO PREVENT THE OCCURRENCE OF UNCONTROLLED GRASS FIRES.

SPOTTER CALL TO ACTION STATEMENT...

SPOTTER ACTIVATION IS NOT EXPECTED THROUGH TONIGHT.

DAYS TWO THROUGH SEVEN...

NO HAZARDOUS WEATHER IS EXPECTED.

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4. Spot Forecast (from NWS Spot Internet Program)

VALID UNTIL 230 AM CST THU NOV 14 2002

IF CONDITIONS BECOME UNREPRESENTATIVE,
CONTACT THE NATIONAL WEATHER SERVICE.

DISCUSSION...CLOUDS WILL INCREASE ON THURSDAY AS A COLD FRONT

APPROACHES THE REGION. FRONTAL PASSAGE WILL BE IN THE EARLY EVENING.
THERE WILL BE A SLIGHT CHANCE OF SPRINKLES OR LIGHT RAIN LATE IN THE
AFTER 4 PM.

FOR PLANNED IGNITION TIME OF 930 CST 11/14/02

SKY/WEATHER.....MOSTLY CLOUDY
TEMPERATURE.....51
HUMIDITY.....60 TO 65
20 FOOT WIND.....SOUTH 10 MPH
MIXING HEIGHT.....600 FT INCREASING TO 1700 FT BY NOON.
TRANSPORT WIND.....SW 7 M/S
WIND SHIFT.....GRADUAL SHIFT TO THE SOUTHWEST BY EARLY
AFTERNOON

FOR THURSDAY AFTERNOON NOON TO 5 PM...

SKY/WEATHER.....CLOUDY
TEMPERATURE.....MAX 57 TO 62
HUMIDITY.....MIN 40 TO 45
20 FOOT WIND.....SOUTHWEST 10 TO 15
CHC OF PRECIPITATION(%)/TIMING...20% AFTER 4 PM
MIXING HEIGHT.....MAX 3000 FT
TRANSPORT WIND.....SW 7 M/S
HAINES INDEX.....4

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Note: Format will vary depending on weather elements requested.